with each other. The first-mentioned fibres pass through the latter without entering into any union with them. In the interspaces of the fibres of this layer are hæmatoxylin cells—which correspond to what were hitherto termed granules (Körner), but which are connective-tissue elements,—and eosin cells, which are connected with nerve-fibres. The hæmatoxylin cells, which are glia cells with nuclei, protoplasm, and anastomosing prolongations, are found also between the nerve fibres of the white matter, and form a supporting medium like that in the white substance of the cord. The eosin cells seem to be only swellings of the axes-cylinders.

2. The molecular layer. The intercellular substance seems to be composed of a fine network. Between the layer of granules and molecular layer, B. describes a *limitans interna*, composed of glia cells which act as a support to the Purkinje's cells, and the nerve fibres and blood-vessels of the latter.

The following is Beevor's schema of the relations of the different parts. Each undividing nerve-fibre is in relation with one Purkinje's cell, its axis passing over into the protoplasm, its medullary sheath into the capsule of the cell. The axis-cylinder divides within the cell into a number of fibrillæ, which again pass into the dividing prolongations of the cells. The fibrillæ run in distinct threads to the periphery. Through the division of the prolongations the fibrillæ at last become isolated. They then bend at an angle of 90° to spread over the surface, and to be again collected into fibres surrounded by medullary sheaths, which, after entering into various plexuses, run into the white matter of the cerebellum. PHILIP ZENNER, M.D.

b—PHYSIOLOGY OF THE NERVOUS SYSTEM.

THE INFLUENCE OF SECTIONS OF THE SPINAL CORD UPON THE COMPOSITION OF THE BLOOD.—Quinquad has made several experiments upon this subject, and found a diminution of the carbonic acid the nearer the section was toward the cervical region. After a section of the cervico-dorsal segment of the cord he found, at the end of ten to fifteen minutes, that the blood in the femoral veins became arterial, and presented a deep red appearance; the oxygen was increased. Brown-Séquard, in his remarks upon this communication, stated that section of the cord produced two effects at one time: arrest of the changes in all the tissues, which explains the redness of the venous blood; and at another time exaggeration of these changes, or black blood in the arteries.—*Le Progrès Médicale*, No. 22, 1884.

CEREBRAL CONVOLUTIONS.—Brown-Séquard stated that since 1870–71 the idea had been advanced that the cerebral convolutions could be divided in two zones: the one, upon being excited, giving movement; the other zone with a stronger current not giving rise to any motor phenomena. The reverse of this statement should be made, if you excite very vigorously the non-motor zone; inhibition is produced, whilst with a feeble current movement ensues. Thus if a very feeble current is applied upon the occipital lobe there is produced the usual phenomena upon irritation of the motor centres, if the electrodes at the same time are applied upon the motor zone and upon the occipito-sphenoidal lobe, then a true tetanus ensues in place of the ordinary movements. He is able to produce an epileptic attack as a result of cauterization of this zone, which is non-motor. The cauterization of the motor or non-motor parts causes a paralysis of the great sympathetic of the same side. He concludes from these experiments and many others that the non-excitable parts of the brain possess perhaps an excitability much greater than those which normally have excitability.—*Le Progrès Médicale*, No. 20, 1884.

THE DISTURBANCES OF VISION AFTER INJURY TO THE CORTEX OF THE BRAIN.—Mr. Jacques Loeb has made a series of experiments upon dogs, and arrives at the following results:

Every portion of the cortex of the occipital lobes, the median as well as the lateral part of Munk's "centre of vision," the "vision-centre" of Dalton, Ferrier, Luciani, and Tamburini, can be removed without the smallest disturbances of vision ensuing. The view of the authors, that the removal of this spot necessarily leads to disturbances of vision, and the conclusion that this spot is the centre of vision, is erroneous.—*Pflüger's Archiv.*, Band 34, Heft 1 and 2.

THE RAPIDITY OF THE CIRCULATION.—Prof. Robert Meade Smith has made a series of experiments upon this subject. His method of experimenting was as follows: Two pigeons were killed by decapitation immediately before the experiment, and their blood collected in a dry porcelain dish and thoroughly defibrinated by whipping with glass rods; the blood was then filtered through a fine linen cloth moistened with half per cent. salt solution. The animal to be experimented upon was tied, etherized, and glass cannulæ inserted into the external jugular veins—in the left directed toward the heart, and in the right toward the periphery, flow of blood being prevented by spring clips. A cannula was then inserted into the femoral artery and connected with a mercurial manometer writing on the kymographion. The cannula in the right external jugular vein was connected by means of a piece of rubber tubing about four centimetres long with a glass stop-cock, by which the outflow of blood could be regulated to about the amount normally passing through the vein. The apparatus for collecting the blood and for noting the time of each collection consisted of a horizontal glass disc thirty-one centimetres in diameter, which could be uniformally rotated by clock-work at any desired speed. Twenty four watch-glasses, each about two centimetres in diameter were fastened by sealing-wax around the edge of the disc, and the apparatus was so arranged that as the disc rotated the centre of each watch-glass passed under the stop-cock connected with the right jugular vein. The time was recorded in the following way: The entire disc, with the exception of the border on which the glasses were fastened, was covered with a layer of lampblack and an electro-magnetic lever so arranged that as the disc revolved it would describe a concentric circle on the smoked surface. A syringe containing ten cubic centimetres was then filled with the defibrinated pigeon's blood and bound in the cannula previously filled with the same blood in the left external jugular. After all connections were made the kymographion was started and allowed to revolve for twenty or thirty seconds before making the injection, so as to get a normal pulse and pressure curve. The clip was then removed from the right jugular vein, and as soon as the blood commenced to flow from the glass stop-cock the clip was removed from the left jugular, the injection made and the disc started simultaneously, the instant of starting the disc being also automatically recorded below the pulse line on the kymographion. When all the cups were filled with the blood the disc was stopped and the blood instantly examined microscopically. He arrives at the conclusion that the average time required to complete the circulation in a dog of ten kilogrammes weight was between twenty-five to thirty seconds.—Transactions of the College of Physicians of Philadelphia. Third Series, vol. vii.

ISAAC OTT, M.D.

c.—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

DISTRIBUTION OF ANÆSTHESIA IN CASES OF DISEASE OF THE BRANCHES AND OF THE ROOTS OF THE BRACHIAL PLEXUS.—In a most interesting article under the above title, Dr. James Ross (*Brain*, April, 1884) draws the following conclusions from cases reported by Litrevaut, Bernhardt, Wier Mitchell, and others under his own observation, in which one or more of the cutaneous nerves of the brachial plexus has been completely divided, and in which the permanency of paralysis in the region of distribution of the corresponding motor fibres, or some other circumstance had shown that no reunion of the divided ends could have taken place:

1. That one of the principal nerves of the brachial plexus may be divided without giving rise to complete anæsthesia in any part of the area of distribution of the sensory branches of the nerve; and that when complete anæsthesia does occur the portion of the skin affected is very limited, and even the area of skin affected with partial anæsthesia is usually much less than the district corresponding to the anatomical distribution of the nerve.
2. That, as a general rule, the anæsthesia caused by division